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UNITED STATES GOVERNMENT

Memorandum

TO : Deputy Director, OBG

DATE: 24 November 1970

FROM : Chief, CD/BGI

SUBJECT: Requirements for Research and Development

1. The Cartography Division, by virtue of its intelligence research and technical responsibilities, is interested in both the collection and processing of intelligence. For the past 5 years considerable effort has gone into the research and development of an automated system for producing maps and charts. An insatiable demand for visual aids has developed on the part of briefing officers. Also there is a constant demand for the best available sources of intelligence suitable for map production. These requirements have been dealt with in varying degrees and remain as outstanding programs for continuing development by the Division's Special Assistant for Research and Development. Although considerable progress has been made in the acquisition of hardware, there still remains the task of implementing the full potential of this machinery. Considering the rapid advancement of most technology the Division has been able to adopt a "wait-and-see" policy and at the appropriate time make the proper selection in consultation with OCS and ORD in DDS&T.

2. It is difficult to assign a priority to each statement of need since the Division is engaged in a variety of activities, all of which are considered of relatively equal importance. In general, priorities established in the Division are dictated by the nature and urgency of the requirements submitted by the requesting components in the Agency. However each statement of need will contain information which will help determine its priority.

3. Digitizer

a. A need exists for automating the digitizing process. There is evidence that the Division will be asked to digitize huge quantities of contour lines in a short time span. Although line scanners are available on the market and will provide the X and Y value, there is no automated system yet developed which will produce the Z value. It is anticipated that considerable funding will be required to develop the essential hardware.

b. The DDS digital plotter is currently being driven by a PDP-8 which has additional computer capabilities. There is a need for an interactive system with a digitizer whereby the operator is assured that his

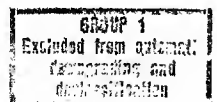


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work is in fact being recorded and a method developed where the operator can, at anytime, check what has been digitized. If errors are detected, corrections can be made immediately thereby saving considerable time over the present system of completing a digitizing project, producing a plot tape, and then plotting the entire job before editing can take place. Consultations with ORD indicate that the PDP-8 can be utilized to accomplish this task. Funding, if any, would be at a minimum.

4. Color Zerography

The demand for visual aids for briefing purposes has risen sharply over the past few years and frequently involves converting existing hard copy graphics into vugraphs. If separation plates of the required graphic are available, the problem is relatively simple. But if the separation plates are not available in the file, a full fledged color separating operation must ensue. The Minnesota Mining Corporation has under development a piece of hardware which will produce "instant vugraphs" but the resolution of the color transparency has been judged to be sub-standard. It would be advisable to investigate this 3-M process and perhaps others in order to develop an acceptable system. Funding requirements are unknown and would depend on the initial findings of any investigation.



6. Laser-plotter

It is anticipated that within the next 5 years, when the Cartography Division has implemented the full potential of the [redacted] which is due for delivery in December 1970, and the [redacted] which is receiving acceptance tests, that it should take a hard look at the developments taking place in producing a laser-plotter. Predictions in trade journals indicate that such an instrument will generate type, draft area tones, produce hill shading, prepare color copy via its three frequency output, and will greatly assist in handling problems in computer memory. Informal discussions have taken place with ORD on the developments of this piece of equipment--particularly the research taking place at the

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7. Holography

Considering that the Japanese Telephone Company is advertising a system whereby the entire telephone directory for Tokyo can be stored on four pages, it seems advisable to investigate the potential of this little known system in view of the fact that the Cartography Division is in the early stages of developing a multi-million point data bank where present storage techniques are cumbersome and possibly inadequate.



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